



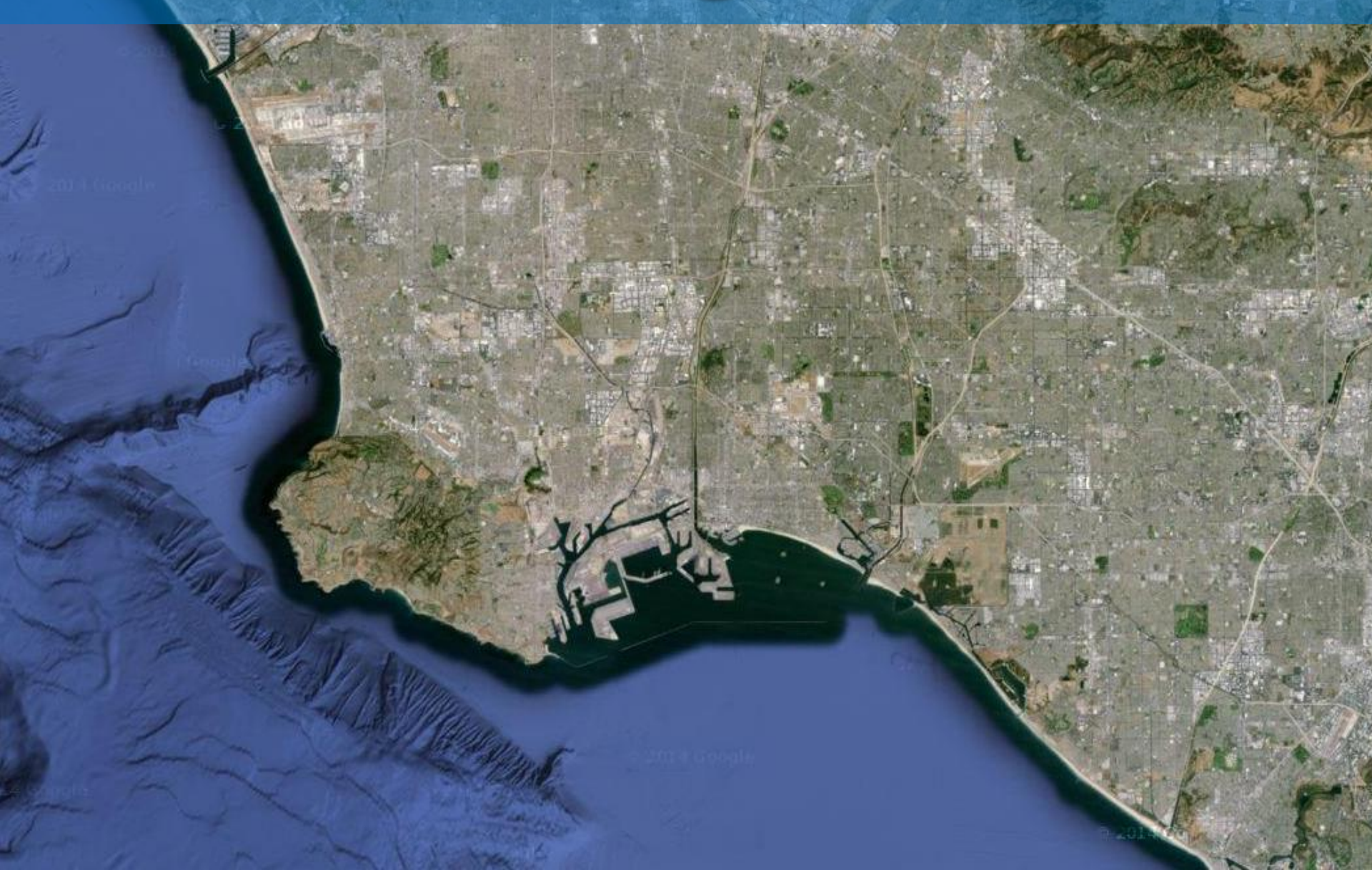
Greening Ports: Sustainable Port Development and Operation Strategies



Port of
LONG BEACH
The Green Port

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Port of Long Beach





Premier gateway for U.S-Asia trade

Port of Long Beach

Economic Engine & Environmental Leader



Why did the Port go “green”?

Stakeholder Support

The background of the slide features several green flags with white wind turbine icons. The word "Environment" is printed in white on the green fabric of the flags. A blue horizontal band is overlaid across the middle of the image, containing the main title and subtitle.

Green Port Policy

Approaching Year Ten!



San Pedro Bay

Clean Air Action Plan

POLB, POLA, EPA, CARB & AQMD

Diesel
Particulate
Matter:

Down **72%** 2014
77% 2023

Nitrogen
Oxides:

Down **22%** 2014
50% 2023

Sulfur
Oxides:

Down **93%** 2014
93% 2023

Clean Air Goals

2014 and 2023

Diesel Particulate
Matter:
DOWN

82%

Nitrogen Oxides:
DOWN

54%

Sulfur Oxides:
DOWN

90%

Greenhouse Gases:
DOWN

20%

0.3%

TEUs
UP

2013 Air Emissions Inventory

Shore Power

State Regulation; Lease Requirements





TAP Demonstration

Advanced Maritime Emissions Control System

No vessel retrofits; >95% emission reductions

North American Emission Control Area





San Pedro Bay

Water Resources Action Plan

POLB, POLA, EPA, RWQCB

Port of **LONG BEACH**

Municipal and Facility Operations Stormwater Program





Low Impact Development

Anaheim Street



Greener, More Efficient Facilities

Investing in the Future

POLB \$4.5 billion infrastructure program focused on economic and environmental sustainability



\$1.3 billion

Middle Harbor

First half set to open in late 2015



Piers E and F

Before Construction

1 million TEU capacity



One Operating Terminal

Middle Harbor

3 million TEU Capacity



World's Most Advanced Technologies Ship-to-Shore Cranes

Integrated into Automated Terminal Operations



Cargo Handling Equipment

Electrified Operations

Automated Guided Vehicles (AGVs)



POLB Energy Policy

Electrification expected to quadruple the Port's electricity use by 2030.



Thank You